Space Weather Highlights
22 April - 28 April 2013

SWPC PRF 1965
29 April 2013

Solar activity was at low to moderate levels during the period. The period began at very low levels, but quickly rose to moderate levels as an impulsive M1 flare and associated Type IV radio sweep occurred at 22/1029 UTC from Region 1726 (N13, L=331, class/area Fkc/1000 on 25 Apr). An associated coronal mass ejection (CME) was observed in LASCO C2 imagery off the west limb at 21/1036 UTC, but was only partially Earth-directed and did not result in noticeable impacts. Activity returned to low levels following the M1 flare, but remained fairly active throughout the period, producing over 60 C-class flares. The most active region was Region 1726, which produced over 33 C-class flares on its own. As soon as Region 1726 rotated off the visible disk on 25 Apr, Region 1731 (N09, L=187, class/area Dkc/420 on 28 Apr) emerged and quickly became the area of interest, producing a total of 12 C-class flares. Region 1733 (S17, L=254, class/area Cso/30 on 28 Apr) produced a C4/1n flare associated with Type II (576 km/s) and Type IV radio emissions at the end of the forecast period, and had an associated potentially Earth-directed CME. Further analysis is pending.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was normal to moderate levels from 22 Apr to 26 Apr. Flux values increased to high levels on 27 Apr, reaching a max of 2920 pfu at 27/1625 UTC, and remained at moderate to high levels until late on 28 Apr as a result of effects from coronal hole high speed stream (CH HSS) activity.

Geomagnetic field activity was at quiet to unsettled levels on 22-23 Apr. Activity increased to unsettled to active levels on 24 Apr due to effects from a favorably positioned CH HSS. Solar wind speeds increased to near 430 km/s, the total interplanetary magnetic field (IMF) reached a maximum 23.4 nT, and the Bz component dropped to -18.9 nT. Solar wind speed continued to increase on 25 Apr to the 500 km/s range, total fields decreased to approximately 5 nT, and the Bz component of the IMF was variable between +/- 3 nT. The ionosphere responded with a short-lived G1 (Minor) geomagnetic storm early on 26 Apr, but conditions quickly returned to unsettled levels for the remainder of the day. Quiet levels returned by 27 Apr and remained there through the end of the period as CH HSS effects diminished.

Space Weather Outlook
29 April - 25 May 2013

Solar activity is expected to be low with a chance for M-class flares through 07 May as Region 1731 remains on the visible disk. Activity is expected to decrease to very low to low levels through 08 May. Activity will likely increase to low with M-class flares likely when we see Region 1726 return on 09 May. Region 1731 returns on 20 May, keeping levels low with M-class flares likely through the end of the forecast period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate to

high levels through 02 May due to CH HSS effects. Values should decrease to normal to moderate levels from 03 May through 21 May. Another increase to moderate to high levels in response to recurrent CH HSS effects is expected from 22-25 May.

Geomagnetic field activity is expected to be mostly quiet through 20 May. Conditions should increase to unsettled to active with isolated periods of minor storming possible from 21-23 in response to recurrent CH HSS effects. Mostly quiet levels should return on 24 and 25 May.

Daily Solar Data

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10^{-6} hemi.)	X-ray Background Flux	Flares							
					X-ray			Optical				
					C	M	X	S	1	2	3	4
22 April	113	83	650	B3.7	3	1	0	4	0	0	0	0
23 April	118	95	710	B4.9	11	0	0	11	1	0	0	0
24 April	115	92	950	B5.6	7	0	0	12	0	0	0	0
25 April	119	93	1450	B7.3	11	0	0	1	0	0	0	0
26 April	122	104	1090	B6.9	10	0	0	4	0	0	0	0
27 April	127	100	650	B8.4	9	0	0	0	0	0	0	0
28 April	132	97	640	B6.9	12	0	0	13	1	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ^{2} -day -sr)			Electron Fluence (electrons/cm^2 -day -sr)		
	>1 MeV	>10 MeV	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
22 April	1.1e+06	7.8e+04	2.7e+03		1.5e+06	
23 April	9.6e+05	2.1e+04	2.9e+03		8.6e+05	
24 April	3.7e+05	1.3e+04	2.6e+03		6.7e+05	
25 April	2.8e+05	4.0e+04	5.2e+03		3.2e+06	
26 April	6.6e+05	1.3e+04	3.0e+03		2.5e+07	
27 April	3.6e+05	1.2e+04	2.9e+03		1.1e+08	
28 April	2.7e+05	1.1e+04	2.7e+03		1.1e+08	

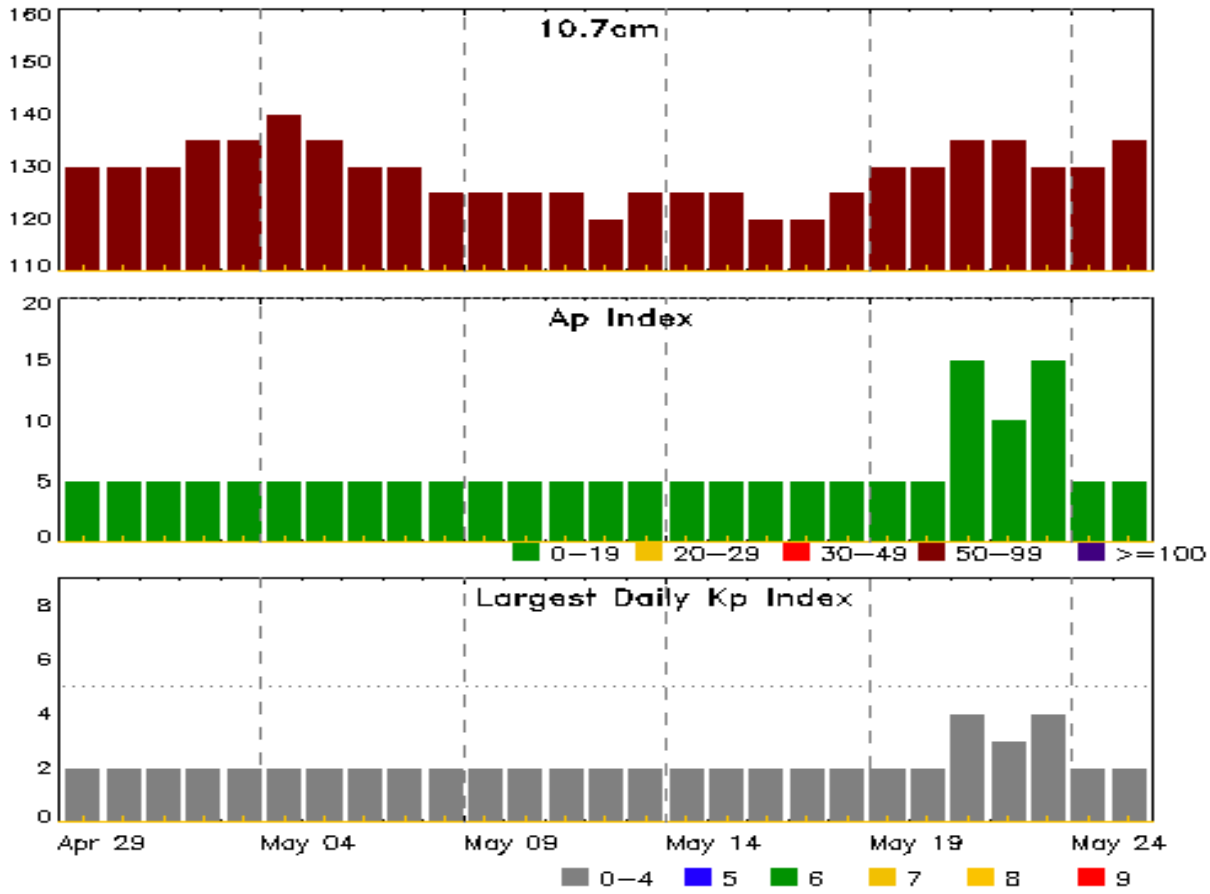
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
22 April	5	1-2-0-1-2-2-1-2	0	1-0-0-0-0-0-0-0	4	1-2-0-1-1-1-1-1
23 April	6	0-1-1-2-3-2-2-2	3	0-1-2-1-0-1-1-2	7	0-1-1-2-2-2-2-3
24 April	15	3-2-3-3-4-2-3-3	36	3-5-3-5-6-5-3-3	19	4-3-2-3-4-3-4-3
25 April	14	2-2-1-3-3-2-5-2	14	2-2-2-5-3-3-2-1	8	2-2-1-2-2-2-3-2
26 April	18	4-5-3-3-2-2-2-3	33	3-4-5-6-4-5-2-3	17	3-5-3-3-3-2-3-3
27 April	6	2-3-1-1-2-2-1-1	7	3-2-2-1-2-2-1-1	6	2-2-2-1-1-1-1-2
28 April	4	0-0-0-2-2-2-1-2	5	1-0-0-3-3-2-1-0	5	0-0-0-2-2-1-2-2

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
22 Apr 1453	ALERT: Type IV Radio Emission	22/1035
22 Apr 1748	ALERT: Type IV Radio Emission	22/1728
22 Apr 2346	WATCH: Geomagnetic Storm Category G1 predicted	
23 Apr 1439	ALERT: Type II Radio Emission	23/1419
23 Apr 1711	ALERT: Type IV Radio Emission	23/1646
23 Apr 1920	ALERT: Type II Radio Emission	23/1823
24 Apr 0135	WARNING: Geomagnetic K = 4	24/0145 - 1600
24 Apr 0204	ALERT: Geomagnetic K = 4	24/0202
24 Apr 1309	ALERT: Type II Radio Emission	24/1229
24 Apr 1442	WARNING: Geomagnetic K = 5	24/1445 - 2100
24 Apr 1444	EXTENDED WARNING: Geomagnetic K = 4	24/0145 - 25/0000
24 Apr 2045	EXTENDED WARNING: Geomagnetic K = 5	24/1445 - 25/0900
24 Apr 2057	EXTENDED WARNING: Geomagnetic K = 4	24/0145 - 25/1500
26 Apr 0306	WARNING: Geomagnetic K = 4	26/0310 - 1200
26 Apr 0439	ALERT: Geomagnetic K = 4	26/0435
26 Apr 0520	WARNING: Geomagnetic K = 5	26/0518 - 0900
26 Apr 0601	ALERT: Geomagnetic K = 5	26/0559
27 Apr 0936	ALERT: Electron 2MeV Integral Flux >= 1000pfu	27/0915
28 Apr 0755	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	27/0915
28 Apr 2101	ALERT: Type IV Radio Emission	28/2027
28 Apr 2101	ALERT: Type II Radio Emission	28/2018

Twenty-seven Day Outlook



Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index
29 Apr	130	5	2	13 May	125	5	2
30	130	5	2	14	125	5	2
01 May	130	5	2	15	125	5	2
02	135	5	2	16	120	5	2
03	135	5	2	17	120	5	2
04	140	5	2	18	125	5	2
05	135	5	2	19	130	5	2
06	130	5	2	20	130	5	2
07	130	5	2	21	135	15	4
08	125	5	2	22	135	10	3
09	125	5	2	23	130	15	4
10	125	5	2	24	130	5	2
11	125	5	2	25	135	5	2
12	120	5	2				

Energetic Events

	Time			X-ray		Optical Information			Peak Radio Flux		Sweep Freq Intensity	
Date	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	II	IV
22 Apr	1022	1029	1031	M1.0	0.002			1726	5000			

Flare List

	Time				Optical		
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
22 Apr	0054	0058	0101	B9.6			1726
22 Apr	0233	0237	0247	B7.7			1726
22 Apr	0443	0446	0451	B6.3			1727
22 Apr	0606	0614	0617	B9.5	SF	N12W25	1726
22 Apr	1022	1029	1031	M1.0			1726
22 Apr	1151	1155	1159	B6.9			
22 Apr	1529	1531	1532		SF	S25W61	1723
22 Apr	2150	2156	2202	C1.2	SF	S26W43	1724
22 Apr	2209	2211	2212		SF	S24W41	1724
22 Apr	2237	2240	2243	C2.9			
22 Apr	2247	2248	2250	C1.5			1726
23 Apr	0237	0246	0335	C1.0			
23 Apr	0419	0421	0423	C1.1			1726
23 Apr	B0841	U0847	A0849		SF	N09W44	1726
23 Apr	1030	1033	1036		SF	N11W39	1726
23 Apr	1138	1141	1144	B8.8			
23 Apr	B1256	U1256	A1302		SF	N10W44	1726
23 Apr	1308	1311	1313	B8.9	SF	N10W44	1726
23 Apr	1318	1321	1324	B8.8	SF	N09W43	1726
23 Apr	1327	1331	1334	C2.1			
23 Apr	1341	1341	1342		SF	N14W43	1726
23 Apr	B1355	U1413	A1522	C8.2	SF	N09W43	1726
23 Apr	1458	1459	1500	C1.2			1726
23 Apr	1459	1501	1505	C1.5	SF	N14W42	1726
23 Apr	1515	1518	1520	C2.5	SF	N15W40	1726
23 Apr	1631	1632	1640		SF	N12W46	1726
23 Apr	1810	1833	1845	C3.0			1723
23 Apr	1929	1934	1939	C1.8	1F	N15W43	1726
23 Apr	2309	2313	2317	C1.7	SF	N11W44	1726
23 Apr	2321	2325	2328	C2.5			1726

Flare List

	Time			Optical			
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
24 Apr	B0000	0010	0016		SF	N12W46	1726
24 Apr	0017	0021	0023	C1.4	SF	N14W46	1726
24 Apr	0323	0328	0333	C1.4	SF	N13W48	1726
24 Apr	0500	0501	0509		SF	N10W54	1726
24 Apr	0957	1007	1018	C1.6	SF	N10W59	1726
24 Apr	1116	1122	1133	C1.4	SF	N10W59	1726
24 Apr	1136	1142	1146		SF	N09W55	1726
24 Apr	1222	1222	1225		SF	N09W55	1726
24 Apr	1310	1323	1335	C1.2	SF	N12W60	1726
24 Apr	1330	1340	1351		SF	N14W56	1726
24 Apr	1650	1658	1712	C2.5	SF	N13W63	1726
24 Apr	2239	2255	2326	C1.6	SF	N13W65	1726
25 Apr	0012	0021	0037	C2.6			1726
25 Apr	0157	0223	0232	C2.0			1724
25 Apr	0330	0341	0351	C1.5			1726
25 Apr	0826	0832	0841	C2.3			
25 Apr	1043	1052	1110	C3.4			1726
25 Apr	1423	1435	1448	C1.1			1726
25 Apr	1612	1624	1633	C1.5			1726
25 Apr	1709	1717	1723	C3.9			
25 Apr	1724	1728	1732	C5.6			1726
25 Apr	1934	1940	1943	C5.8			1726
25 Apr	2155	2202	2206	C5.7	SF	N14W76	1726
26 Apr	0422	0427	0430	C2.5			
26 Apr	0620	0627	0631	C7.0	SF	N09W88	1726
26 Apr	0703	0705	0712		SF	N09W86	1726
26 Apr	0824	0827	0830	C1.5			1726
26 Apr	0851	0857	0901	C3.4			1726
26 Apr	1241	1257	1300	C3.5			1726
26 Apr	1534	1543	1614	C4.4			1726
26 Apr	1705	1707	1713	C1.7	SF	S16W09	1726
26 Apr	1823	1828	1836	C2.3			1726
26 Apr	2059	2117	2134	C2.7			1726
26 Apr	2209	2225	2234	C5.7	SF	N11W87	1726
27 Apr	0209	0213	0218	C2.4			
27 Apr	0245	0252	0300	C5.2			1726
27 Apr	0352	0357	0401	C2.5			
27 Apr	0617	0622	0626	C3.1			1726

Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
27 Apr	0726	0730	0738	C1.3			
27 Apr	1206	1217	1233	C3.1			1726
27 Apr	1324	1327	1337	C1.1			1731
27 Apr	1508	1513	1537	C1.9			1732
27 Apr	1621	1629	1643	C1.5			1732
28 Apr	0607	0613	0617	C2.1	SF	N10E40	1731
28 Apr	0717	0717	0723		SF	S19E66	1732
28 Apr	1435	1438	1441	C1.1	SN	N10E29	1731
28 Apr	1453	1456	1459	C1.9	SN	N10E29	1731
28 Apr	1538	1544	1549	C1.8	SF	N09E35	1731
28 Apr	1552	1555	1558	C3.7	SN	N10E29	1731
28 Apr	1658	1702	1705	C1.8	SN	N10E28	1731
28 Apr	1800	1804	1806	C3.6	SN	N10E28	1731
28 Apr	2010	2017	2026	C4.4	1N	S18W37	1733
28 Apr	2024	2024	2027		SF	N09E26	1731
28 Apr	2059	2103	2107	C1.5	SF	N09E20	1731
28 Apr	2122	2128	2130		SF	N09E25	1731
28 Apr	2132	2140	2143	C1.3	SF	N08E32	1731
28 Apr	2327	2330	2333	C3.1	SN	N09E24	1731
28 Apr	2355	0005	0013	C1.7			1731

Region Summary

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 1723												
13 Apr	S18E49	1	10	2	Bxo	2	B								
14 Apr	S18E36	1	80	5	Dac	8	B								
15 Apr	S18E20	2	180	6	Dac	12	BG	1			2				
16 Apr	S17E09	1	180	8	Dai	23	BG	2			4				
17 Apr	S18W05	1	200	8	Dai	21	B								
18 Apr	S16W16	1	190	9	Dai	21	B								
19 Apr	S18W32	3	100	8	Dai	14	B								
20 Apr	S19W44	1	60	7	Cao	9	B								
21 Apr	S20W57	1	40	7	Cso	3	B	1			1				
22 Apr	S19W70	2	30	7	Cso	3	B				1				
23 Apr	S20W84	1	40	5	Cso	4	B	1							
								5	0	0	8	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 1

			Region 1724												
13 Apr	S27E70	340	40	2	Hax	2	A	1							
14 Apr	S27E58	339	50	2	Hax	3	A								
15 Apr	S27E44	338	60	2	Hax	2	A								
16 Apr	S26E31	338	70	4	Dao	7	B								
17 Apr	S26E19	336	40	2	Cso	4	B								
18 Apr	S26E07	335	20	1	Cso	2	B								
19 Apr	S26W05	335	20	1	Hrx	2	A								
20 Apr	S26W19	336	10	1	Axx	1	A								
21 Apr	S26W32	336	plage												
22 Apr	S26W46	337	plage					1			2				
23 Apr	S26W60	338	plage												
24 Apr	S26W74	339	plage												
25 Apr	S26W88	339	plage					1							
								3	0	0	2	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 335

			Region 1725												
19 Apr	N10W58	28	20	2	Cro	2	B								
20 Apr	N10W70	27	10	3	Bxo	3	B				1				
21 Apr	N10W84	28	plage												
								0	0	0	1	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 28

Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 1726												
19 Apr	N13E07	323	20	3	Dro	4	B				3				
20 Apr	N13W05	322	180	13	Eai	15	BG	8			7				
21 Apr	N12W22	326	260	13	Ekc	36	BGD	12			29	1			
22 Apr	N13W35	325	550	13	Ekc	42	BGD	1	1		1				
23 Apr	N13W49	326	580	15	Eki	34	BGD	8			11	1			
24 Apr	N13W63	328	840	17	Fkc	30	BGD	7			12				
25 Apr	N13W85	331	1000	17	Fkc	17	BGD	8			1				
26 Apr	N13W93	331	600	13	Ekc	20	BG	9			3				
								53	1	0	67	2	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 322

			Region 1727												
19 Apr	N26E57	273	40	3	Dao	2	B								
20 Apr	N25E44	273	50	7	Dao	9	B								
21 Apr	N25E31	273	60	8	Dao	7	B								
22 Apr	N25E18	272	70	8	Dao	8	B								
23 Apr	N25E03	274	40	5	Cao	3	B								
24 Apr	N25W11	276	30	2	Hax	3	A								
25 Apr	N24W26	277	30	1	Hrx	1	A								
26 Apr	N25W39	277	10	1	Axx	2	A								
27 Apr	N25W52	277	10	1	Axx	1	A								
28 Apr	N25W66	278	plage												
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 274

			Region 1728												
23 Apr	N19E62	214	40	2	Cso	2	B								
24 Apr	N19E48	217	60	2	Hsx	1	A								
25 Apr	N19E37	214	50	1	Hsx	1	A								
26 Apr	N19E24	213	60	4	Hsx	2	A								
27 Apr	N19E11	214	20	2	Hrx	3	A								
28 Apr	N19W02	214	20	1	Hrx	1	A								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 214

Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
			Region 1729												
23 Apr	S14W08	285	10	2	Bxo	2	B								
24 Apr	S14W22	287	10	3	Bxo	6	B								
25 Apr	S15W35	286	40	5	Dso	3	B								
26 Apr	S15W49	287	20	6	Cro	3	B								
27 Apr	S15W63	288	plage												
28 Apr	S15W77	289	plage												
								0	0	0	0	0	0	0	0
			Region 1730												
24 Apr	S19E47	217	10	5	Bxo	2	B								
25 Apr	S18E34	217	60	5	Dao	7	B								
26 Apr	S18E20	218	100	7	Dao	7	B								
27 Apr	S18E07	218	150	9	Dsc	15	B								
28 Apr	S18W07	218	140	9	Dai	18	B								
								0	0	0	0	0	0	0	0
			Region 1731												
25 Apr	N07E61	189	270	6	Dkc	4	BG								
26 Apr	N09E51	187	300	9	Dkc	10	BG								
27 Apr	N09E37	187	420	10	Dkc	17	BG	1							
28 Apr	N09E25	187	420	10	Dkc	25	BG	11			12				
								12	0	0	12	0	0	0	0
			Region 1732												
27 Apr	S15E66	157	20	1	Hsx	1	A	2							
28 Apr	S17E54	158	30	1	Hsx	1	A				1				
								2	0	0	1	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 285

Still on Disk.
Absolute heliographic longitude: 218

Still on Disk.
Absolute heliographic longitude: 187

Still on Disk.
Absolute heliographic longitude: 158

Region Summary - continued

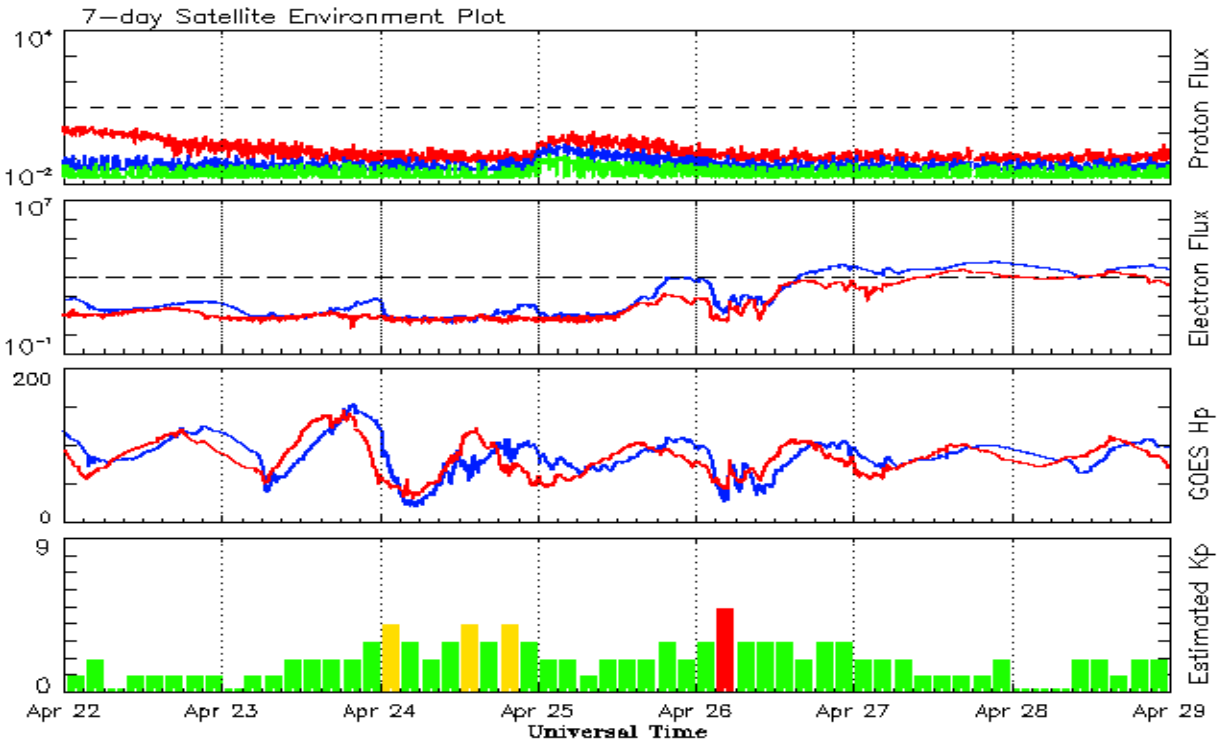
	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
		Region 1733													
27 Apr	S16W30	253	30	3	Cso	3	B								
28 Apr	S17W42	254	30	3	Cso	2	B	1				1			
								1	0	0	0	1	0	0	0

Still on Disk.
Absolute heliographic longitude: 253

Recent Solar Indices (preliminary)
Observed monthly mean values

	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth
Month	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
				2011					
April	81.7	54.4	0.67	61.5	41.8	112.6	100.4	9	7.5
May	61.4	41.6	0.68	69.0	47.6	95.9	105.6	9	7.5
June	55.5	37.0	0.67	76.5	53.2	95.8	110.9	8	7.4
July	67.0	43.8	0.66	82.5	57.3	94.2	115.4	9	7.3
August	66.1	50.6	0.77	84.9	59.0	101.7	117.9	8	7.4
September	106.4	78.0	0.73	84.6	59.5	134.5	118.4	13	7.7
October	116.8	88.0	0.75	84.6	59.9	137.2	118.4	7	8.0
November	133.1	96.7	0.73	86.3	61.1	153.1	119.5	3	8.0
December	106.3	73.0	0.69	89.2	63.4	141.2	121.6	3	8.0
				2012					
January	91.3	58.3	0.64	92.0	65.5	133.1	124.4	6	8.3
February	50.1	32.9	0.66	94.2	66.9	106.7	126.7	7	8.4
March	77.9	64.3	0.82	94.1	66.8	115.1	126.8	14	8.1
April	84.4	55.2	0.65	91.3	64.6	113.1	125.8	9	8.0
May	99.5	69.0	0.69	87.7	61.7	121.5	123.8	8	8.2
June	88.6	64.5	0.73	83.9	58.9	120.5	121.1	10	8.3
July	99.6	66.5	0.67	82.4	57.8	135.6	119.5	13	8.3
August	85.8	63.0	0.74	83.1	58.2	115.7	119.2	7	8.1
September	84.0	61.4	0.73	83.7	58.1	123.2	118.9	8	7.8
October	73.5	53.3	0.73			123.3		9	
November	89.2	61.8	0.69			120.9		6	
December	60.4	40.8	0.68			108.4		3	
				2013					
January	99.8	62.9	0.63			127.1		4	
February	60.0	38.0	0.63			104.4		5	
March	81.0	57.9	0.71			111.2		9	

Note: Values are final except for the most recent 6 months which are considered preliminary. Cycle 24 started in Dec 2008 with an RI=1.7.



Weekly Geosynchronous Satellite Environment Summary
Week Beginning 22 April 2013

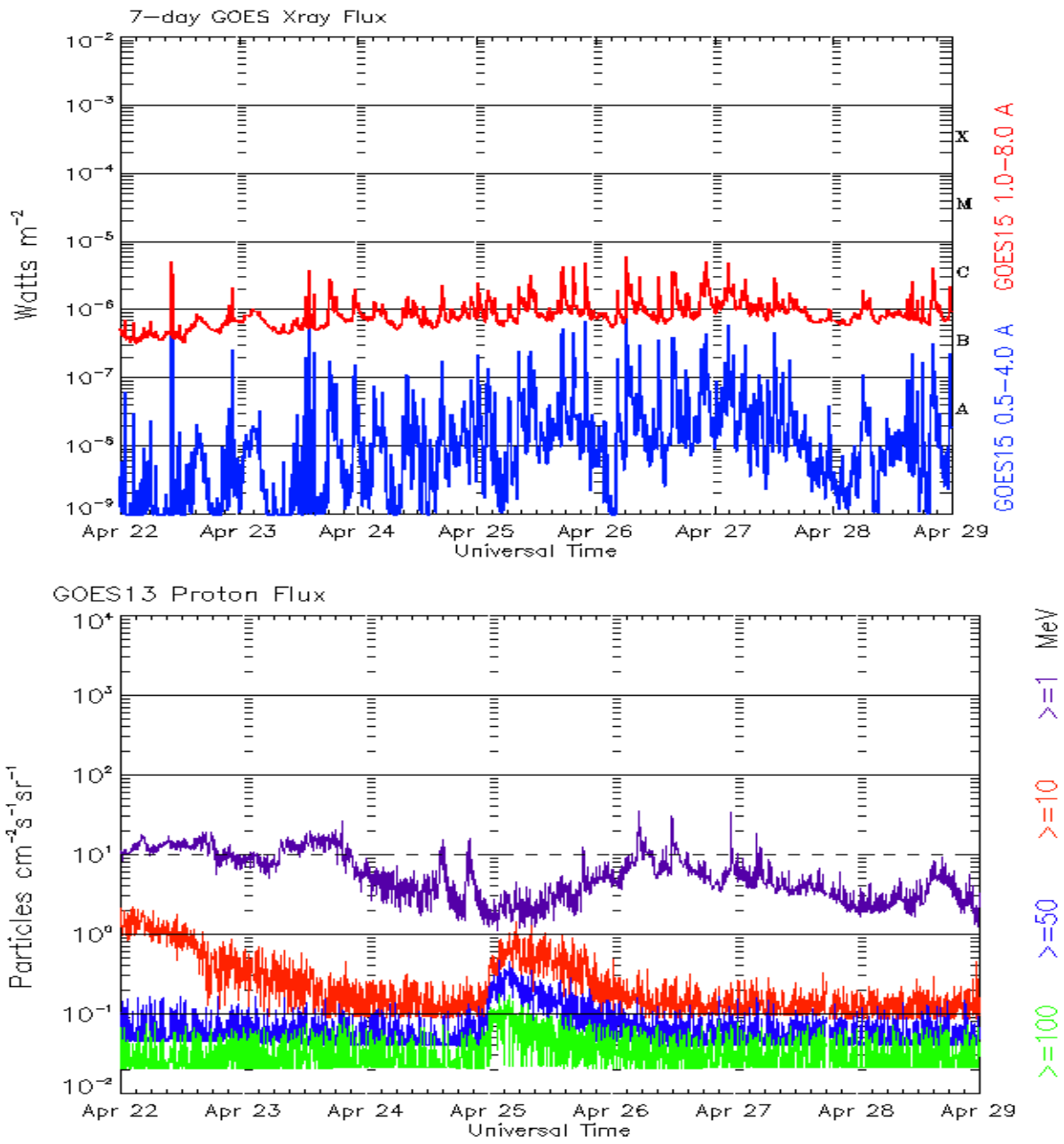
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm^2-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm^2-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

The Estimated 3-hour Planetary Kp-index is derived at the NOAA Space Weather Prediction Center using data from the following ground-based magnetometers: Boulder, Colorado; Chambon la Foret, France; Fredericksburg, Virginia; Fresno, California; Hartland, UK; Newport, Washington; Sitka, Alaska. These data are made available thanks to the cooperative efforts between SWPC and data providers around the world, which currently includes the U.S. Geological Survey, the British Geological Survey, and the Institut de Physique du Globe de Paris.

The data included here are those now available in real time at the SWPC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are 'global' parameters that are applicable to a first order approximation over large areas. H parallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.



Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 22 April 2013

The x-ray plots contains five-minute averages x-ray flux (Watt/m^2) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged intergral flux units (pfu = protons/cm^2 -sec -sr) as measured by the primary SWPC GOES Proton satellite for each of the energy thresholds: >1, >10, >30, and >100 MeV. The P10 event threshold is 10 pfu at greater than 10 MeV.

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Notice: The 27-day Outlook, Satellite Environment, X-ray and Proton plots have been redesigned. Comments and suggestions are welcome SWPC.Webmaster@noaa.gov

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